

Model 8.1m Ka-Band Antenna

Satcom Cassegrain Antennas



The Strength to Perform

High-accuracy, precision reflector

31 GHz operation, meeting ITU, EUTELSAT, WGS, FCC

Aluminum reflector, galvanized steel pedestal

125 mph (200 km/h) wind survival

Low backlash

Feed internal pol adjustment (LP) option

Why Ka-Band?

Ka-band spectrum provides great growth opportunity:

- Alternative to Ku and DBS with greater data throughput
- Maturing of Ka-band grade electronics and amplifiers
- Ka fillings are on the rise – expected market growth Commercial, Military, Government Ka-band sectors
- Supports WGS, Yahsat, Athena Fidus, Eutelsat KaSat, Hughes, WildBlue, and other Ka networks

Description

The General Dynamics SATCOM Technologies 8.1-meter antenna delivers exceptional performance for transmit/receive applications for Ka-band frequencies. This antenna offers a reflector design that incorporates high precision-formed, Ka-band grade panels, truss radials and hub assembly. It features an innovative Cassegrain feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference. A large center hub provides spacious accommodation for equipment mounting. The aluminum reflector is supported by a galvanized elevation over azimuth kingpost pedestal that provides high stiffness for pointing and tracking accuracy. The pedestals are designed for full orbital arc coverage and are readily adaptable to ground or rooftop installations. The electrical performance is compliant with ITU, EUTELSAT, WGS, and FCC sidelobe specifications. All configurations meet SATCOM Technologies' own type-approved quality assurance and performance guarantee.

Options

- Antenna control system with tracking
- Reflector and feed deicing systems
- Environmental hub configurations
- 1:1 and 1:2 pre-engineered amplifier integration kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- CP/LP manual or remote switchable feeds
- Improved feed cross-pol performance
- Multi-band feeds
- Load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing

Upgrades

- Extended azimuth travel
- Low operating temperatures

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Technical Specifications

Electrical ⁽¹⁾	Ka-Band 4-Port Circular Polarized		Ka-Band 4-Port Linear Polarized	
	Receive	Transmit	Receive	Transmit
Frequency (GHz)	17.70 - 21.20	27.50 - 31.00	17.70 - 21.20	27.50 - 31.00
Antenna Gain, Midband (dBi)	62.10	64.70	62.10	64.80
VSWR	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth -3 dB, at midband	0.12°	0.09°	0.12°	0.09°
Antenna Noise Temperature (K)				
5° Elevation	213		207	
10° Elevation	171		164	
20° Elevation	136		128	
40° Elevation	111		104	
Typical G/T (dB/K) ⁽²⁾				
19.45 GHz, 120 K LNA	38.0		38.2	
Axial Ratio (dB)	0.75	0.50		
Power Handling (total)	400 Watts		400 Watts	
Cross Polarization Isolation (dB)				
On Axis	27.3	27.3	30.0	30.0
Within 1.0 dB beamwidth	27.3	27.3	30.0	30.0
Port to Port Isolation (dB)				
Rx/Tx (Rx frequency)	0	-85	0	-85
Tx/Rx (Tx frequency)	-85	0	-85	0
Sidelobe Performance	ITU, EUTELSAT, WGS, FCC			
RF Specification	975-3862		975-3532	

(1) All values are at rear feed flange. (2) Typical G/T at 20° elevation with clear horizon using single bolt-on LNA to feed.

Mechanical/Environmental ⁽³⁾	Kingpost Pedestal (KP120)	Kingpost Pedestal (KX200)
Antenna Diameter	8.1 meters (26.67 feet)	
Antenna Type	Cassegrain design	
Reflector Construction	16 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure	
Hub Dimensions	70 in (178 cm) OD, 36 in (91 cm) depth	
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized A36 steel	
Drive Type	Manual jack screws	
Azimuth Travel	120° continuous	200° (2 segments @ 120°)
Elevation Travel	5 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	22.0 x 22.0 x 2.0 ft (6.7 x 6.7 x 0.61 m)	22.0 x 22.0 x 1.5 ft (6.7 x 6.7 x 0.46 m)
Concrete	36.0 yds ³ (27.5 m ³)	27.0 yds ³ (20.6 m ³)
Reinforcing Steel	6,100 lbs. (2,767 kg)	3,560 lbs. (1,615 kg)
Shipping Containers	One 40 ft standard	
Operational Wind Loading	45 mph (72 km/h) gusting to 60 mph (97 km/h)	
Survival Wind Loading	125 mph (200 km/h) @ 58° F (15° C), any position	
Operational Temperature	+5° to +122° F (-15° to +50° C)	
Survival Temperature	-22° to +140° F (-30° to +60° C), low temperature options available	
Rain	Up to 4 in/h (10 cm/h)	
Relative Humidity	0 to 100% with condensation	
Solar Radiation	360 BTU/h/ft ² (1,000 Kcal/h/m ²)	
Ice (survival)	1 in (2.5 cm) on all surfaces or 1/2 in (1.3 cm) on all surfaces with 80 mph (130 km/h) wind gusts	
Atmospheric Conditions	As encountered in coastal regions and/or heavily industrialized areas	
Shock and Vibration	As encountered during shipment by airplane, ship or truck	

(3) Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.

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